TOWER LAKES
A "Silt Saga"
Lake County Municipal Advisory Commission(revised)

Committee Meeting
June 12, 2013

Intros

- Tom Kubala
  - Intl Business Development
  - 25+ years developing trade and import/export programs
    - Europe
    - APMEA
    - Latin America
- Rich Bahr
  - IT Sales and Management
  - ERP/MES
  - 10 Years Highly Regulated Mfg. under FDA +
    - Drug
    - Biotech
    - Food
  - Zero in Watershed…

When we started 2 years ago…

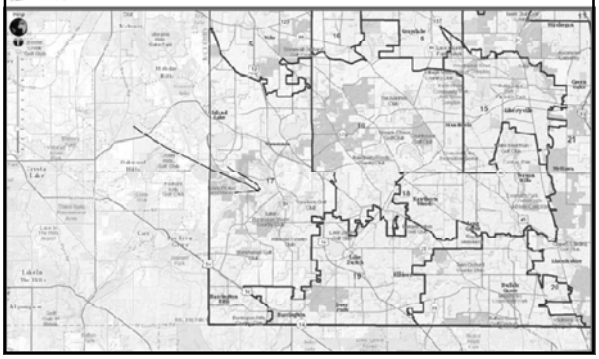
Before we start in…

Comments and experiences are "historical"
We want you to know this is about progress we made and future look.
No watershed component/ community/ project is Apples to Apples

Some Tower Lakes Background

Where we are Geographical/Regulatory.
What we our striving for … &
What our "Orange" looks like?

Where is Tower Lakes?



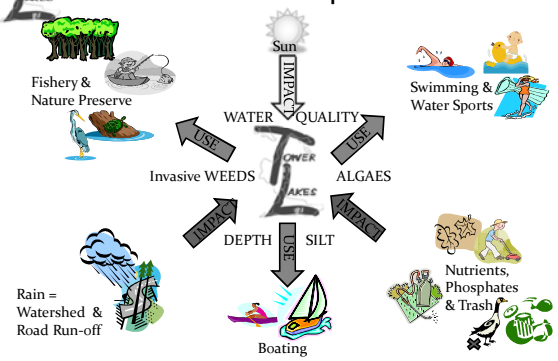
The Community

- 1300 Souls (Village) – Hands-on oriented, Volunteers
  - TLIA 360 homes (of which 69 are lake/waterfront)
    - Association Owns lake and most of shoreline ~10' .
  - Village 439 total homes (3 other small HOAs)
- Smart, Talented, Nature Lovers - Green – Watershed Aware

The Lake

- Acreage - 76 Acres of Lakes and Waterways
- Shorelines - 4.6 miles
- Depth – Average 3.5', deepest 8'(depends on level at dam)
- Six small islands
- Shallow & Sensitive to nutrient load.

Lake Committee Goals & Impacts



History and Lake Issues

We need to discuss an Invisible problem with our most Visible asset.

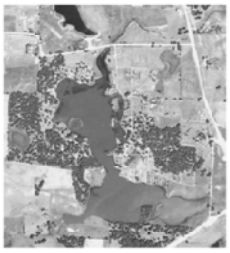
A Little Lake History

Mud Creek 1875

To Tower Lakes 1924-26

Roads, Roofs, **Trees** and Lawns Things have changed

Then 1939



And Now 2011

We Have A History as CARETAKERS of this Lake! 1966-68

Last two Maintenance projects

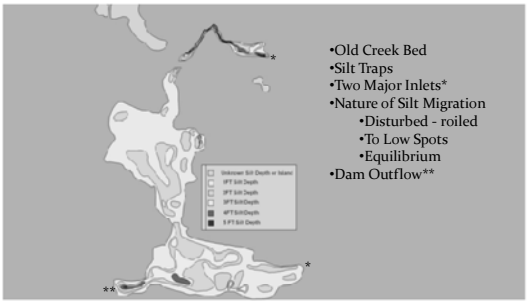
1965-68 Dredge

- Build Silt Traps
- 168 Households
- $31,500
- $219,000 In Today's Dollar
- ~ $1,300 per home
- This type of project much more expensive today.

1992-1995

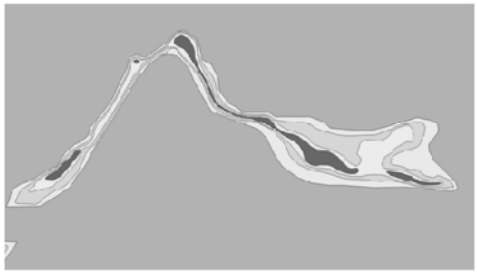
- Rip Rap Shore & Silt Traps
- 320 +Households
- ~$98,000 addl 61K budgeted
- $142,281 In Today's Dollars

Silt Depths from 2005 Survey



- •Old Creek Bed
- •Silt Traps
- •Two Major Inlets*
- •Nature of Silt Migration
  - •Disturbed - roiled
  - •To Low Spots
  - •Equilibrium
- •Dam Outflow**

Davlin Pond Silt Depth 2005



Area Perspective

Other local Communities

Area Lake Comparisons

- Lakes Researched and Associations Consulted
  - Timber Lake, Honey Lake, Lake Barrington and Lake Louise
- Major Concerns
  - Lake Depth
  - Lake Area
  - Density of surrounding Housing
  - Lake Management Type
  - The way they plan and fund maintenance

Lake	Type	Size	Depth	Source	Management/Budget	Issues/Tactics
Tower Lakes	Mud Bottom	66 acres	2-3 Avg. 6-8 ft Max	• Inlet into Davlin's Pond (E of 59, Timber Lake • Retention Pond by Marketplace • Stormwater	• TLIA Volunteer Lake Committee • 360 homes, 74 lakefront (83 with North Lake) • % of TLIA dues - $15,000/yr	• Sediment/Silt Buildup • Unwanted Vegetation • Managed Chemical Treatments
Timber Lake	Mud Bottom	32 acres	7-8 ft, Max of 14-15 ft.	• 3 creek inlets (one includes hwy 12 run off • Stormwater	• Volunteer Lake Committee • 186 homes, 38 lakefront • % of annual dues - $15,000/yr	• Sediment/Silt Buildup • Unwanted vegetation • Lower water level in winter to compact silt/muck – up to 3 ft. • No chemical treatments
Honey Lake	Glacial	66 acres	8-9 ft, max of 18-20 ft.	• 2 small creeks, via wetlands • Stormwater	• Biltmore CC – 50+% of shore • 30-40 homeowners • Funding – by the Country Club	• Natural vegetation – CC side • No chemicals • Lower water level to compact silt/muck • Some weed harvesting
Lake Barrington	Mud Bottom	100 acres	10-12 ft, max of 15 ft.	• Small creek, east of 59, via LBS forest preserve • Stormwater	• Private Company • 13 condo associs, each with lake committee member • $2,5-3.0 mm annual budget	• Planting of lilies on shoreline • Chemical treatment for algae blooms • Occasional weed harvesting
Lake Louise	Mud Bottom	40 acres	4-6 feet	• Flint Creek – Baker Lake upstream • Stormwater	• Volunteer Lake Committee • 411 homes, 75 lakefront • Annual dues • Special Lake management fund ($800-900,000)	• 1-3 feet of sediment • Actively looking at dredging/removal • Floodplain

The Problem

We learned a new word -

Lake Eutrophication

- {characterized by an abundant accumulation of nutrients that support a dense growth of algae and other organisms, the decay of which depletes the shallow waters of oxygen in summer.} dictionary.com
- A process in all lakes and ponds
- Sediment(Nutrient,Silt…) accumulation
- More Problematic in Shallower Bodies – TL…

Easier Definition

- What
  - Flo'd in
  - Fell in
  - Gro'd in & Died or….
- FFG&D (we thought you needed another acronym!)
  - Stick this in your WDO, CWA and notify all MS4s
  - In our conclusions/observations we'll mention prevention vs. cure aspect.

Why are we dredging?

- Simple Objective STEWARDSHIP!
- "Lake Maintenance" (a cure for what wasn't prevented.)
- … doing nothing was not an option.

Our Process and PLan

Overall Timeline 2010 to present

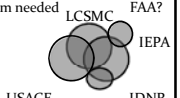
Process

- **Step One** – Research/ Self education ("What can be done?" "What can we Afford?" "What regulations apply?" Where can we put "Spoils?")
  - Measuring Silt and current conditions
  - Sampling
  - growth test and lab analysis of silt for in place remediation.
- **Step Two**– Reach out to Community Orgs and seek advice
- **Step Three** - Talk to "Experts" and Vendors
- **Step Four** - Scale potential project - $$s and Volume
  - Shoot for $425,000 over 5yrs. and factor backward.
  - Break our efforts into phased Approach
    - start with main Inflow and Silt Trap Davlin's Pond.
- **Step Five** – PRESENT(sell) TO THE COMMUNITY put to Special Assessment Vote.
  - Problem Statement Brochure
  - Town Hall Meeting October 2011 – Presentation
- **Step 6** - Select Vendor
  - RFP
  - Interviews/Site visits…
- **Step 7** – Schedule Start Date! Oops! Not so much…

When you actually have funding and viable project – Things change….

Our Further Learnings for Neophytes

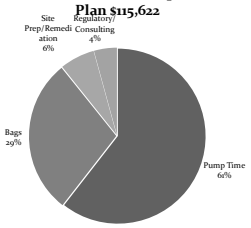
- Despite Research and reading regulations(terminology) - **We do need permits**
  - Construction? Development?
  - Waste water?
  - Navigable Waterways?
  - As Built?(as many definitions/interpretations as sources!)
- Web Searches of regulatory sites??? Not much help.
  - Dredging (Hydraulic)
  - Silt(muck) Removal
  - De-watering
  - …. ?
- Silt Removal Budget and "Soft Costs" a different kind of EROSION.(pie chart)
- Permitting Processes "the Alphabet Soup" a Venn Diagram needed
- SE/SC Measures , DECI,



Impact of regulatory requirements

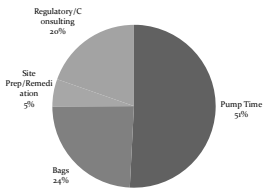
Initial Budget

TL Phase 1 Initial Expense Plan $115,622



After Sept 2012 LCSM Letter

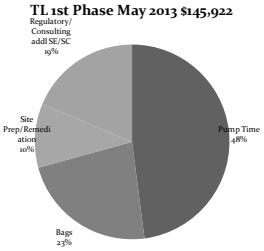
TL 1st phase Expenses $137,700 Sept 2012



Impact of regulatory requirements

As of May 2013

TL 1st Phase May 2013 $145,922



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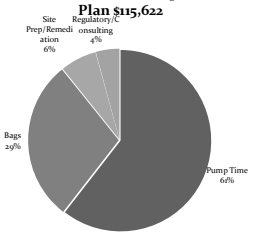
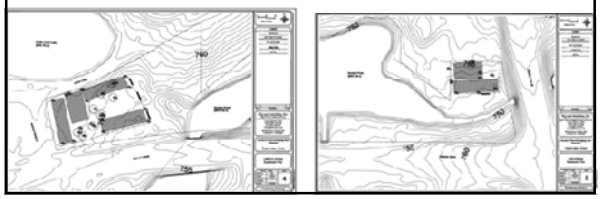


Our Progress with LCSM help

- Permits obtained
- Permit submission costs reduced
  - Less Engineering(elev.) required for bag sites plan



Permit progress to date

- LCSWM Permit obtained – Dec 11 meeting helped
  - Permit submission costs reduced
  - Less Engineering required for bag sites
- US ACE Permit obtained
- Still waiting on IEPA permit
  - Return water question
- Nearly 2 years later….
- We still can not get started….(now phase 1 complete)

Protocols for IEPA?

Conclusions

- Everything ordinance-wise is (laudably) about – "an ounce of prevention is worth a pound of Cure."
- But what about FFGD (Flo'd, Fell, Gro'd n DIED)?
- Suggest "Erosion Reversal" Credits
- Update Agency websites with links and "Primer" for Neophytes.
- We want to be a Lake Maintenance success story – like the "Little Engine that Could" NOT a cautionary tale about pitfalls of attempting GOOD Stewardship!

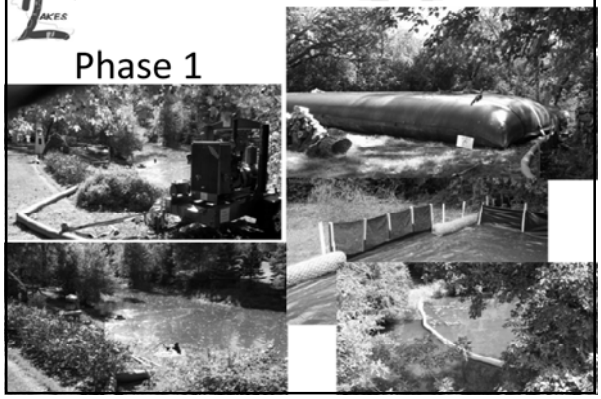
And Now The Rest Of the Story… (Apologies to Paul Harvey)

- LCSMC LISTENED! Weren't just Bureaucrats!
- All permits obtained & Some Costs Reduced (engineering – inspections)
- Site prep - tree clearing, ground leveling, Silt Fencing SE/SC…
- Project Lunched – USAV on Site July 15
- LC SMC Site Visit
- DECI Plan
- LCSMC Created General Permit #3 for dredging

Phase 1

- July 15 – Oct 26, 103 Days or 3 mos 11 days=55 pump Days
- ~ 6,000 Wet suspended Cubic Yds. Of Silt Removed
- 4 Bags 23,500 sq ft 2.5-3ft high – still dewatering.

Phase 1



Phase 1 – quality check

Before & After

Our most important Asset

- 3 more years of Projects
- Long term Maintenance Plan

- Oh Yeah…
- We were selected as LCSMC's "Community of the year!"

Questions?